

10. (Currently Amended) The device of claim 8, wherein said carbon defines a dopant region that is approximately 10 - 500 angstroms \AA in thickness.

11. (Currently Amended) The device of claim 8, A high performance SiGe HBT comprising a SiGe layer with a peak Ge concentration and a boron-doped base region having a thickness, wherein said base region includes diffusion limiting impurities throughout said thickness at a concentration below that of boron in said base region, wherein said diffusion limiting impurities are physically located relative to both said base region and a portion of said SiGe layer, and wherein said peak Ge concentration is at least approximately 20% to optimize performance and yield of said SiGe HBT and wherein said carbon has diffusion limiting impurity defines a dopant region having an upper bound and a lower bound, wherein said peak concentration thickness of said Ge has an upper bound and a lower bound, and wherein said lower bound of said carbon diffusion limiting impurity region is within approximately 150 angstroms \AA of said upper bound of said peak concentration thickness of said Ge.

12. (Currently Amended) The device of claim ~~10~~11, wherein said base region is within approximately 200 - 250 angstroms \AA of said upper bound of said peak concentration thickness of said Ge.